

HOW TO HANDLE CHEMICAL SPILLS¹

by Winand K. Hock

Most of you who handle pesticides know how to use, store and transport these chemicals correctly and safely. But, how many of you would be prepared to respond quickly and properly in the event of a pesticide spill, or, for that case, any accident involving the spontaneous release of hazardous chemicals into the environment? As careful as we usually are, accidents can and do happen.

The release of chemicals into the environment may be only minor, involving but a few leaking containers, or, major, when a truck or rail car overturns spilling its cargo, or the contents of a fully loaded spray tank or container are suddenly released because of an accident or equipment malfunction.

How would you react to such a mishap? Would you be prepared to respond to this type of emergency? The correct or suggested guidelines that one should follow in the event of a hazardous chemical spill are included under the so-called "Three C" program: You must control the spill, you must contain it, and you must clean it up.

Control the spill

Immediately after a spill has occurred, steps should be taken to control the flow of the liquid being spilled regardless of the source. If a sprayer has tipped over, or if a hazardous chemical is leaking from a damaged tank, do everything possible to stop the leak or spill at once.

When attempting to control the leak, don't expose yourself unnecessarily to the leaking chemical; use protective clothing and equipment. Also, don't charge in blindly if someone is injured; again make sure that you are properly protected.

Get help. If you encounter an accident that you can't handle or if problems occur during the clean-up phase, you should contact CHEMTREC in Washington, D.C. at 800-424-9300. The CHEMTREC office (which stands for the Chemical Transportation Emergency Center) is staffed 24 hours a day by competent and trained personnel who are knowledgeable in handling emergencies

involving pesticide chemicals, including spills and accidents.

Have someone alert the state and local police if the spill occurs on a public highway. Contact your state pesticide regulatory agency if the chemical is a pesticide or other agricultural chemical. Be sure to have the product label available! In certain cases it may be necessary to alert the fire department, but be sure to caution them against washing down the spill until advised to do so.

Isolate the Area. Be sure to rope off the contaminating area; keep people at least 30 feet away from the spill. Avoid coming in contact with any drift or fumes that may be released. Do not use road flares if you suspect the leaking material is flammable. At times it may be necessary to evacuate people downwind from the spill.

Do not leave the spill site until someone relieves you. Someone should be present at the spill site around-the-clock until the spill is cleaned up and the danger removed.

Contain the spill or leak

At the same time the leak is being controlled, contain the spilled material in as small an area as possible. In other words, construct a dam to keep the spill from spreading. The important thing to remember is don't let the spilled material get into any body of water, including storm sewers, no matter how small the spill.

If the chemical does contaminate a stream, pond, or any other waterway, contact your state agency responsible for clean waterways, state fisheries personnel, and your state pesticide regulatory agency. Have the authorities notify downstream users as soon as possible to prevent accidental poisoning of livestock and to avoid contamination of crops and soil if the water is used for irrigation purposes.

Discharge of chemical substances into waterways must also be reported to EPA under the authority of the Clean Water Act. All discharges of hazardous substances in "reportable quantities"

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into "navigable" waters of the United States must be reported to the U.S. EPA. "Navigable" waters means any waters of the United States, including adjoining shorelines, lakes, rivers, seas, wetlands, ponds, etc. Failure to report such a mishap could result in penalties up to \$10,000 in fines and up to 1 year imprisonment. Examples of reportable substances and their amount in pounds include the following pesticides: captan (10), carbaryl (Sevin) (100), diazinon (1), malathion (10), methoxychlor (1). You could very easily spill 1 or more pounds of active ingredient if a container or sprayer overturns or leaks. You should familiarize yourself with these regulations governing the discharge of hazardous substances into waterways.

Liquid spills can be contained by spreading absorbent materials over the entire spill. Kitty litter is very useful for containing and cleaning up small spills or minor leaks. However, a word of caution, avoid the use of sawdust or sweeping compounds if the material is a strong oxidizer. Such a combination presents a possible fire hazard.

In the case of a dust, wettable powders, or granular material, you can reduce further spread by lightly misting with water, or by covering the spill with some type of plastic cover.

Clean it up

If you haven't already done so, spread absorbent material over the contaminated area, sweep it up, and place it in a heavy-duty plastic bag. Keep adding the absorbent until all the liquid is soaked up. Once the spill has been cleaned up, it may be necessary to decontaminate or neutralize the area, especially if a carbamate or organophosphate insecticide was involved.

To decontaminate an area, use ordinary household bleach full strength and hydrated lime mixed together. Work this preparation into the spill area with a coarse broom. Then add fresh absorbent material to soak up the now contaminated cleaning solution. This material should then be swept up and placed in a plastic bag or drum for proper disposal. It will be necessary to repeat this procedure several times to assure that the area has been thoroughly decontaminated.

Soil Contamination. What can you do to clean up

a spill that contaminates soil? The only thing that will effectively decontaminate the area is to remove the top 2 to 3 inches of soil. Be sure to dispose of this contaminated soil in a proper landfill. Then cover the area with at least two inches of lime. And, finally, cover the lime with fresh topsoil.

Soils contaminated as the result of application errors or minor spills can sometimes be cleaned up by applying activated charcoal to the contaminated surface immediately after the spill or misapplication has occurred. The charcoal may absorb or tie-up enough chemical to avoid significant plant injury and long-term contamination. Use at least 2 lbs. of activated charcoal per 150 ft² of contaminated area. However, applications of activated charcoal to areas where major spills have occurred will do little to reduce soil contamination and subsequent plant damage. Soil removal is necessary in these cases.

Clean up equipment and vehicles. You must now clean up any vehicles and equipment that were contaminated either as a result of the original accident or during the clean-up procedure. You can use a liquid bleach-alkaline detergent (dishwasher soap) solution to clean your equipment. Don't try to save any disposable garments and gloves or, for that case, any clothing that is badly contaminated. It is best to discard them immediately after you are finished.

Serious Accidents. What can you do if you encounter an accident involving a hazardous chemical that you can't handle — either a major spill has occurred or the chemical is unusually hazardous to handle?

To protect the public and to assist public agencies in handling these mishaps, the chemical industry has developed an emergency response system. The Pesticide Safety Team Network (PSTN) of the National Agricultural Chemicals Association (NACA) represent a joint effort of technically qualified manufacturers to respond to emergency situations where the accidental release of pesticides or other hazardous chemicals has occurred. The PSTN can be reached by telephone 24 hours a day through CHEMTREC.

Let's take a look at how this emergency procedure works.

1. Caller reports an accident to CHEMTREC or 800-424-9300. CHEMTREC gathers as much information as possible.

2. CHEMTREC contacts the area coordinator for the region in which the accident has occurred. The country is divided into 10 areas or regions. Each area has several pesticide safety teams which are staffed by chemical company personnel.

3. The area coordinator then contacts either the manufacturer of the chemical involved in the spill or the person who reported the accident to obtain additional information.

4. If the manufacturer or the area coordinator cannot handle the problem, then the area coordinator will have to contact and dispatch a pesticide safety team to the spill site.

Each pesticide safety team and each area coordinator is provided with guidelines for handling accidental spills and has emergency equipment available to control, contain, and clean up the chemical.

Emergency Telephone Number on the Label.
One additional, very important telephone number to remember is the emergency number found on many product labels. These lines are staffed 24 hours a day and the people on the other end of the line are prepared to handle pesticide emergencies involving their products.

Knowing how to safely handle accidental chemical spills and leaks is as important as knowing how to correctly apply or use the material. Each person who uses or distributes pesticides or other hazardous chemicals has a responsibility to protect the public and the environment. Knowledge of a few basic guidelines involving hazardous chemical spills and leaks can go a long way toward meeting that responsibility.

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SEVIN: A CONTROVERSIAL INSECTICIDE¹

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If you can believe the headlines which appeared in newspapers from the Delaware Valley and New Jersey last spring, the manufacturers of carbaryl or Sevin must have developed and released to the public a "chemical black death" which will make Love Canal, DDT, PCB's, and Kepone in the Chesapeake Bay seem rather insignificant.

One Canadian environmental organization in a letter addressed to local citizens cites some of the "documented" effects of carbaryl.

1. It causes birth defects in mammals, especially dogs.

2. It worsens the condition of people with

hypertension and people on anti-depressant drugs.

3. It impairs the function of the pituitary gland, the thyroid gland, and the reproductive system.

4. It causes hyperactivity and learning disabilities in mammals.

5. It could increase the chance of heart attack in people with weak hearts.

6. The main break-down product, nitrosocarabaryl, which is easily created in the human gut, is a potent cancer-causing agent.

7. It causes irreversible chromosomal damage

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